

Application No. 10/787,449
Response to Office Action

Customer No. 01933

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE SPECIFICATION

The specification, including the abstract, has been amended to replace the terms "front" and "rear" with "upper" and "lower", respectively, so as to more accurately describe the drawings. In addition, the specification, including the abstract, has also been amended to correct some minor informalities of which the undersigned has become aware.

No new matter has been added, and it is respectfully requested that the amendments to the specification be approved and entered.

ALLOWABLE SUBJECT MATTER

The Examiner's indication of the allowability of the subject matter of claims 3 and 4 is respectfully acknowledged.

These claims, however, have not been rewritten in independent form at this time since, as set forth in detail hereinbelow, it is respectfully submitted that their parent claim 1 also recites allowable subject matter.

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THE CLAIMS

Claims 1-4 and 6 have been amended to make some minor clarifying amendments, including changing the terms "front" and "rear" to "upper" and "lower", in accordance with the amended specification, as well as to make some minor grammatical improvements and to correct some minor antecedent basis problems so as to put the claims in better form for issuance in a U.S. patent.

In addition, claim 6 has been amended to depend from claim 1, in order to put claim 6 in better dependent form.

No new matter has been added, and it is respectfully requested that the amendments to claims 1-4 and 6 be approved and entered.

It is respectfully submitted, moreover, that the amendments to claims 1-4 and 6 are not related to patentability, and do not narrow the scope of the claims either literally or under the doctrine of equivalents.

THE PRIOR ART REJECTION

Claims 1, 2 and 5-8 were rejected under 35 USC 103 as being obvious in view of the combination of the admitted prior art of Figs. 1-4B and USP 6,731,243 ("Taira et al"). This rejection, however, is respectfully traversed.

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On page 2 of the Office Action, the Examiner asserts that Fig. 4A of the present application shows "a flat-plate radiation element buried inside the dielectric substrate at its center portion" (emphasis added) as recited in claim 1.

It is respectfully pointed out, however, that Fig. 4A clearly shows a radiation element 31 stacked on top of a dielectric substrate 32, which is in turn stacked on top of the ground conductor 34.

And it is respectfully submitted that stacking a radiation element on top of a dielectric substrate in no way corresponds to burying the radiation element inside the dielectric substrate at a center portion of the dielectric substrate. (See Fig. 6B for an illustration of "buried inside.")

In addition, it is respectfully submitted that neither the admitted prior art of Figs. 1-4B nor Taira et al discloses, teaches or suggests a flat-plate radiation element buried inside the dielectric substrate at a center portion of the dielectric substrate. Indeed, it is respectfully pointed out that according to Taira et al the antenna element 13 or 33 is mounted on top of a spacer 32 above ground plane 11 or 31 (Figs. 1, 3, 4 and 10), or the antenna element 23 is mounted on top of the dielectric plate 22 (Fig. 2).

In addition, according to the present invention as recited in clarified amended independent claim 1, the conductor cover

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comprises: (a) a side wall portion extending in a thickness direction of the radiation element such that the conductor cover covers all of the side surfaces of the dielectric substrate, and (b) at least one hood portion extending from an upper edge of the side wall portion so as to cover a part of an upper surface of the dielectric substrate.

That is, according to the present invention as recited in clarified amended independent claim 1, the conductive cover covers all of the side surfaces of the dielectric substrate and includes at least one hood portion that covers a part of an upper surface of the dielectric substrate. And it is respectfully submitted that neither the admitted prior art of Figs. 1-4B nor Taira et al discloses, teaches or suggests the conductive cover recited in claim 1.

Indeed, it is respectfully pointed out that according to Taira et al the box-like cavity 35 merely covers edges of an upper portion of the antenna element 33. Nevertheless, it is respectfully submitted that Taira et al does not disclose, teach or suggest that the box-like cavity 35 covers portions of an upper surface of a dielectric element (in which the radiation element is buried).

It is respectfully submitted, moreover, that Taira et al discloses a hollow, air-filled cavity space between the cavity 35 and the antenna element 33, as shown in Fig. 4. And since air

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has a lower dielectric constant than a dielectric substrate, the antenna apparatus of the present invention as recited in claim 1, in which the radiation element is buried in a dielectric substrate that is covered on all sides and on a part of the upper surface by a cover, can sufficiently obtain higher gain than any radiation element placed inside the air-filled cavity without contact to any covers as in Taira et al. It is thus possible for the antenna apparatus of the present invention as recited in claim 1 to be significantly smaller than the apparatus of Taira et al.

In view of the foregoing, it is respectfully submitted that neither the admitted prior art of Figs. 1-4B nor Taira et al discloses, teaches or even remotely suggests an antenna apparatus that comprises a flat-plate radiation element buried inside the dielectric substrate at a center portion of the dielectric substrate. And it is respectfully submitted, therefore, that the admitted prior art of Figs. 1-4B and Taira et al clearly do not at all disclose, teach or suggest a conductor cover that comprises: (a) a side wall portion extending in a thickness direction of the radiation element such that the conductor cover covers all of the side surfaces of the dielectric substrate, and (b) at least one hood portion extending from an upper edge of the side wall portion so as to cover a part of an upper surface of

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the dielectric substrate, as according to the present invention as recited in amended claim 1.

Accordingly, it is respectfully submitted that amended independent claim 1 and claims 2-8 depending therefrom all clearly patentably distinguish over the admitted prior art of Figs. 1-4B and Taira et al, taken singly or in combination, under 35 USC 103.

RE: CERTIFIED PRIORITY DOCUMENT

It is respectfully requested that the Examiner acknowledge receipt of the certified copy of the priority document, which was filed with the original application papers on February 25, 2005, and is available in the USPTO Image File Wrapper for the present application. See the attached contents listing of the IFW of the present application, which was retrieved from the PAIR system.

* * * * *

In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the

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undersigned at the telephone number given below for prompt
action.

Respectfully submitted,

/Douglas Holtz/

Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
220 Fifth Avenue - 16th Floor
New York, New York 10001-7708
Tel. No. (212) 319-4900
Fax No. (212) 319-5101

DH:nps:iv
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Printer Friendly

10/787,449 Antenna apparatus including a flat-plate radiation element and improved in radiation characteristic

Image File Wrapper

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02-25-2004	Drawings	8	<input type="checkbox"/>
02-25-2004	Oath or Declaration filed	1	<input type="checkbox"/>
02-25-2004	Information Disclosure Statement (IDS) Filed	2	<input type="checkbox"/>
02-25-2004	Foreign Reference	5	<input type="checkbox"/>
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